

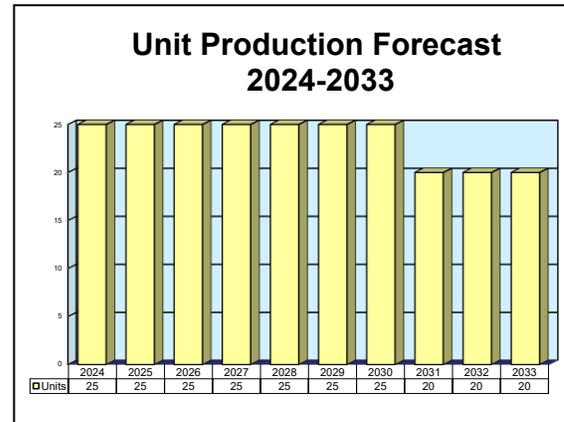
ARCHIVED REPORT

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BTR-3U

Outlook

- Ukraine's conflict with Russia keeps Ukrainian defense industries on war footing
- While KMDB and Ukroboronprom promote the BTR-3 on the international market, domestic Ukrainian procurement continues to take priority
- Forecast reflects Ukrainian BTR-3 serial production, primarily for domestic procurement



Orientation

Description. A wheeled armored vehicle.

Status. Development through serial production.

Sponsor. KMDB pursues production and development of the BTR-3 family of vehicles as a private venture.

Total Produced. Through 2023, the contractor reportedly produced 854 BTR-3 series vehicles.

Licensees. Unspecified defense contractors in Myanmar and Thailand assemble BTR-3 series vehicles for delivery in kit form to local facilities.

Application. A wheeled armored vehicle optimized for transporting infantry during both offensive and defensive operations.

Price Range. In 2024 U.S. dollars, the BTR-3U carries an estimated unit price of \$523,000.

Contractors

Prime

SE KMDB Kharkiv Morozov Machine Building Design Bureau	http://www.morozov.com.ua , 126 Plekhanivska St, Kharkiv, Ukraine, Tel: + 380 577 57 41 44, Fax: + 380 577 57 41 01, Email: morozov@morozov.com.ua , Prime
V.A. Malyshev State Enterprise, V.A. Malyshev Research and Production Assn	http://www.malyshevplant.com , Plehanovskaya St, 126, Kharkov, Ukraine, Tel: + 380 57 739 30 08, Fax: + 380 57 766 87 33, Email: marketing@malyshev.kharkov.ua , Prime
ADCOM Military Industries	1404 Three Sails Centre PO Box 2529, Industrial City of Abu Dhabi, Abu Dhabi, United Arab Emirates, Tel: + 971 26811134, Fax: + 971 26811135, Email: adcom@emirates.net.ae , Launch Contractor
Ukroboronprom, Ukrainian Defense Industry	36 Degtyarivska St, Kyiv, Kyiv Municipality, Ukraine, Tel: + 380 44 461 91 02, Fax: + 380 44 586 24 77, Email: kanc@ukroboronprom.com , Dealer/Distributor

BTR-3U**Subcontractor**

Luch Design Bureau, SKDB Luch

http://www.luch.kiev.ua, 2, Melnikova str, Kyiv, Ukraine, Tel: + 380 44 483 0745,
 Fax: + 380 44 483 1394, Email: kb@luch.kiev.ua (Shkval)

Contractors are invited to submit updated information to Editor, International Contractors, Forecast International, 75 Glen Road, Suite 302, Sandy Hook, CT 06482, USA; rich.pettibone@forecast1.com

Technical Data

BTR-3U "Guardian" APC Outfitted with Shkval Weapons Module

Source: KMDB

BTR-3U

Crew. Three: driver, gunner and commander. The vehicle carries six fully equipped infantrymen.

Armor. All-welded steel armor provides protection against 12.7mm armor-piercing projectiles over frontal

arc and 7.62mm armor-piercing projectiles over the rest of the vehicle. Applique and explosive reactive armor (ERA) packages are also available.

Dimensions. The following data reflect the latest production-standard BTR-3U vehicle.

	<u>SI Units</u>	<u>U.S. Units</u>
Length	7.65 m	25.09 ft
Width	2.90 m	9.51 ft
Height	2.86 m	9.38 ft
Combat weight	16.4 tonnes	18.07 tons
Fuel capacity	285 liters	75.28 gal

BTR-3U

Performance. The automotive performance data reflect use on a paved road with a Deutz BF6M-1015 powerplant.

	<u>SI Units</u>	<u>U.S. Units</u>
Maximum speed	95 kmph	59.03 mph
Maximum water speed	8 kmph	4.98 mph
Maximum range	600 km	372.82 stat mi
Step	50 cm	1.64 ft
Trench	2.0 m	6.56 ft
Slope	25%	25%
Gradient	30%	30%
Fording	1.2 m	3.94 ft

Engine. The BTR-3U can integrate an array of engine configurations based upon customer specifications.

In the primary configuration, the vehicle mounts a Deutz BF6M-1015 air-cooled diesel powerplant that generates 243.10 kilowatts (326 hp). The BTR-3U with the Deutz engine operates at an approximate power-to-weight ratio of 14.16 kilowatts per tonne (19.70 hp/ton).

The vehicle can also mount a UTD-20 diesel powerplant operating at 233.70 kilowatts (300 hp), with a power-to-weight ratio of 13.94 kilowatts per tonne (18.7 hp/ton). The Russian engine manufacturer Barnaultransmash produces the UTD-20 engine.

Gearbox. The BTR-3U utilizes an Allison MD3066 automatic gearbox.

Suspension and Running Gear. Torsion bar suspension with hydraulic shock dampers. Each of the front four wheels mounts two shock dampers, while the back four wheels each integrate a single shock damper.

The vehicle features hydraulically assisted power steering and a centrally operated tire-pressure adjustment system.

Armament. The BTR-3U mounts a one-man Shkval weapons module, designed by Ukraine's Luch Design Bureau.

The Shkval weapons module can integrate a number of ordnance configurations. The most common configuration mounts a ZTM-1 30mm cannon, a PKT 7.62mm machine gun, and a KBA-117/AGS-17 30mm grenade launcher.

The module also mounts two anti-tank guided missile launchers, the make of which varies according to customer specifications. ATGM options include the KPB Konkurs and NORINCO HJ-8 Red Arrow systems.

The Shkval module features full day/night fire-control imaging capabilities, a laser rangefinder, and a TKN-4S Agat stabilized sight.

The module also features six 81mm electrically operated smoke grenade launchers.

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BTR-3E1 APC Outfitted with Shturm Weapons Module

Source: Ukroboronprom

BTR-3E1

Crew. Three: driver, gunner and commander. The vehicle carries up to six fully equipped infantrymen.

Armor. Same as the BTR-3U.

Dimensions. The following data reflect the production-standard BTR-3E1 vehicle.

	<u>SI Units</u>	<u>U.S. Units</u>
Length	7.63 m	25.03 ft
Width	3.15 m	10.33 ft
Height	2.76 m	9.05 ft
Combat weight	16.80 tonnes	18.51 tons
Fuel capacity	300 liters	79.25 gal

Performance. The automotive performance data reflect use on a paved road and assume the vehicle is outfitted with a UTD-20 powerplant.

	<u>SI Units</u>	<u>U.S. Units</u>
Maximum speed	85 kmph	52.81 mph
Maximum water speed	8 kmph	4.98 mph
Maximum range	850 km	528.16 stat mi
Step	50 cm	1.64 ft
Trench	2.0 m	6.56 ft
Slope	25%	25%
Gradient	30%	30%
Fording	1.2 m	3.94 ft

Engine. The BTR-3E1 is available in a number of engine configurations, depending on customer specifications.

These options include a liquid-cooled, turbocharged MTU 6R106-TD21 diesel powerplant operating at 243.10 kilowatts (326 hp), a UTD-20 operating at

233.70 kilowatts (300 hp), or a Deutz BF6M-1015 air-cooled diesel powerplant generating 243.10 kilowatts (326 hp).

Gearbox. The BTR-3E1 integrates an automatic Allison MD3066 or Allison 3200SP mechanical gearbox.

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Suspension and Running Gear. Same as the BTR-3U model.

Armament. The BTR-3E1 model can mount an array of armament configurations.

The primary setup integrates a one-man BM-3M Shturm weapons module.

The Shturm module mounts a ZTM-1 or Russian 2A72 30mm cannon, a 7.62mm PKT coaxial machine gun, a

KBA-117/AGS-17 30mm grenade launcher, and two Baryer anti-tank guided missile launchers.

The Shturm module features full day/night fire-control imaging capabilities, a laser rangefinder, and the SVU-500-4TS weapons stabilization system.

In May 2014, the prime contractor unveiled an upgraded Shturm weapons module configuration.

The module also features six 81mm electrically operated smoke grenade launchers.

Variants/Upgrades

Variants. The BTR-3 product line currently offers the following variants. The contractors are also planning a number of additional variants.

<u>Designation</u>	<u>Description</u>
BTR-3 Command Vehicle	BTR-3 variant intended to operate as a mobile command post. The variant is outfitted with an array of specialized communications equipment and intelligence capabilities, with a significantly altered rear cabin space. Also designated BTR-3K.
BTR-3 Ambulance	BTR-3 variant intended to provide protection for casualties and a means of egress from hazardous environments. The vehicle's modified rear cabin is outfitted with a full medical suite. Also designated BTR-3S.
BTR-3 81mm Mortar	BTR-3 variant modified to operate as a mobile artillery support unit, equipped with an 81mm mortar system. Also designated BTR-3M1.
BTR-3 120mm Mortar	BTR-3 variant modified to operate as a mobile artillery support unit, equipped with a 120mm mortar system. Also designated BTR-3M2.
BTR-3 Recovery Vehicle	BTR-3 variant intended to operate in a battlefield recovery role. The variant is outfitted with a heavy winch and crane system. Also designated BTR-3BR.
BTR-3RK	BTR-3 variant outfitted with unspecified anti-tank missile system.
BTR-3E Cockerill	BTR-3E1 variant outfitted with a CMI Group Cockerill CSE 90LP two-man turret module mounting a 90mm cannon with advanced fire control systems.
BTR-3E CPWS	BTR-3 variant developed in conjunction with CMI Group, equipped with a CMI CPWS weapons module and capable of integrating a 20mm or 30mm cannon.
BTR-3E1	BTR-3 variant mounting a Shturm weapons module and outfitted with an array of engine configurations, namely the Russian UTD-20, that are different from the engine of the base BTR-3U model. The BTR-3E1 is an enhanced build of the earlier-production BTR-3E variant.

Modernization and Retrofit Overview. Not applicable at this time.

Program Review

Background. In 1991, as the former constituent republics of the Soviet Union splintered away into independent statehood, the Kharkiv Morozov Machine Building Design Bureau and the Malyshev defense plant transferred from Soviet-state operation into the ownership and jurisdiction of the new Ukrainian government.

Long considered among the most prominent members of the Soviet Union's vast defense industry, the two

contractors have retained this preeminent position in the independent Ukraine and operate under state ownership.

In January 2013, the Kharkiv Morozov Machine Building Design Bureau (SOE KMDB) underwent reorganization, becoming State Enterprise Kharkiv Morozov Machine Building Design Bureau (SE KMDB).

Since the collapse of the Soviet Union, KMDB and associated Ukrainian contractors have developed a

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number of vehicle programs. Although initial efforts focused on the adaptation and modernization of Soviet legacy designs, recent years have seen Ukrainian contractors assert greater autonomy and innovation in their domestically produced vehicle concepts.

These new programs, in addition to the consistently profitable work of retrofitting and modernizing foreign and domestic Soviet vehicle stocks, have allowed Ukrainian contractors to become an increasingly significant force on the international market for armored vehicles.

First Step: BTR-94

Among the first vehicle programs pursued by the prime contractors after independence was the development and production of the BTR-94/94K.

Development of the BTR-94 began in the late 1980s during the twilight of the Soviet era; however, the vehicle did not come into its own or enter the market until after independence. The BTR-94, now no longer in production, was an evolutionary improvement upon the widely proliferated Soviet BTR-80 design.

Although the BTR-94 was not a completely new vehicle concept, the lessons learned and production experience gained during the program's run helped lay the foundation for the eventual development of the BTR-3 series.

Enter the BTR-3

Development of the BTR-3 series commenced in 2000 as a collaborative private venture between KMDB, the State Scientific Technical Centre of Artillery & Rifle Arms of Ukraine, and Abu Dhabi's ADCOM Manufacturing Company.

The vehicle's design and outfitting was optimized for the operational requirements of the United Arab Emirates' Marines, along with consideration of the needs of the wider export market.

Although the BTR-3U bears numerous design commonalities with the Soviet-era BTR-80 family of vehicles, the series is nevertheless touted as an independent development, and the design contains a number of subtle, but substantive, differences from its Soviet predecessor.

The BTR-3U vehicle was publicly unveiled in 2001, and serial production was launched not long thereafter.

Reports indicate that the UAE placed an initial order for 110 BTR-3U vehicles, but ultimately procured only 24.

The initial BTR-3U model designed for UAE procurement also carries the designation "Guardian."

Description. The BTR-3 series features an overall build and configuration similar to that of the prior BTR-80/94 series vehicles.

The driver sits in the left-front of the hull, with the commander sitting at the right-front.

Both the driver and commander positions feature a single-piece hatch cover, and bulletproof windows with armored shutters. Each station is also outfitted with four day periscopes, as well as one night-capable periscope.

The commander's station also features a firing port on the right side of the vehicle hull.

The vehicle's one-man weapons module is mounted directly behind the driver and commander's station.

As with the BTR-80/94 vehicles, the troop compartment occupies the midsection of the vehicle hull. The troop compartment's seating, for up to six fully equipped infantrymen, features a single bench integrated into the center of the compartment, with troops situated in a back-to-back arrangement.

The troop compartment features three forward-angled firing ports on each side of the hull, and also integrates multiple day/night periscopes. The troop compartment's overhead hatch covers provide two additional firing ports.

The troop compartment's primary access/egress points are two doors situated on each side of the hull. These doors are located between the second and third axles of the vehicle. Each is composed of two pieces, with the upper section opening frontward, while the lower portion hinges downward to form a step for enhanced ease of access/egress.

The single water jet mechanism for amphibious operations mounts into the center-rear of the vehicle hull.

Standard features of the BTR-3 series include a nuclear, biological, and chemical (NBC) protective suite; heating and air conditioning; and an array of communications equipment.

Funding

The prime contractors pursue the production and development of the BTR-3 series as a private venture.

Contracts/Orders & Options

In 2000, the United Arab Emirates placed an initial order for 110 BTR-3U vehicles. Reports indicate that the order was later altered to 24 vehicles, all of which are operated by the UAE Marines.

In 2007, Thailand ordered approximately 96 BTR-3 series vehicles. However, political infighting over procurement policy within the Thai Ministry of Defense and reticence on the part of German automotive contractor Deutz to supply the engines for the vehicles repeatedly stalled delivery. The first batch, consisting of 14 vehicles, was delivered in 2010, and deliveries were completed in 2012.

In Aug 2011, Thailand signed a contract for the procurement of 121 BTR-3 series vehicles. The contract was reportedly worth approximately \$140 million.

In Aug 2013, Thailand ordered an additional 21 BTR-3 series vehicles. The order consists of 15 BTR-3E1s and six BTR-3RK variants.

Worldwide Distribution/Inventories

Export Potential. Ukrainian contractors have become an increasingly significant force on the international market for armored vehicles. The affordable unit costs and modernized systems of Ukrainian defense products make them a popular option among customers in the Middle East, Africa, and Southeast and Central Asia.

The BTR-3 series is highly representative of this market appeal, integrating modernized weapons systems with a low unit cost, familiar design functionality, and a high degree of ease in maintenance and logistics.

We anticipate that the series will continue to achieve a moderate level of success, barring a significant deterioration in the internal stability of Ukraine.

Countries. Azerbaijan, Chad, Kazakhstan, Myanmar, Nigeria, Sudan, Thailand, Ukraine, United Arab Emirates, United States.

Forecast Rationale

The conflict between the central Ukrainian government and Russia has placed Ukraine's defense industries on a war footing.

Frontline Service

Although the BTR-3 vehicle was initially an export product, the urgency of providing Ukraine's largely underequipped Army and National Guard troops and volunteer battalions with modern armored vehicles has increasingly taken precedence.

The Ukrainian military had largely prioritized the procurement of BTR-4 APCs, as well as the retrofit and modernization of older vehicle stocks, over procurement of BTR-3 series vehicles. However, statements and documentation from relevant Ukrainian contractors and defense bodies suggest that the military plans to accelerate procurement of the new-build BTR-3 series.

Stalled Ambitions

In the years prior to Ukraine's crisis and the initiation of armed conflict in 2014, the BTR-3 series had emerged as a product of considerable success and promise on the international export market, particularly in Asia.

Despite statements from some Ukrainian officials that the export of military products has become dormant, ongoing low-quantity export sales of BTR-4 vehicles would suggest this is not actually the case.

In addition, Ukrainian defense contractors continue to promote their wares to foreign customers in the hopes of generating future interest and demand for Ukrainian defense products in the event of a return to peacetime conditions. Nevertheless, the demands of the war at home have now largely superseded the country's once profitable defense-export industry.

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The fulfillment of the BTR-3 series' most profitable export arrangement to date – several successive orders of the vehicles by the Thai Army – remains on hold. The majority of the units produced to fulfill the contract in 2014 now reside with the Ukrainian National Guard.

The future of the BTR-3 series on the international market is largely dependent on the course of events in

Ukraine. In the event of political and economic stabilization, the vehicle is likely to garner moderate, sustained interest.

However, the continual failure of successive ceasefire arrangements and the volatility of the country's political landscape make any predictions highly tentative in nature.

Ten-Year Outlook

ESTIMATED CALENDAR YEAR UNIT PRODUCTION													
Designation or Program		High Confidence					Good Confidence			Speculative			
	Thru 2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Total	
SE KMDB Kharkiv Morozov Machine Building Design Bureau													
BTR-3													
	854	25	25	25	25	25	25	25	20	20	20	235	
Total	854	25	25	25	25	25	25	25	20	20	20	235	